## ACOUSTICAL SOCIETY OF AMERICA

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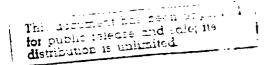
## **MINUTES**

ACCREDITED STANDARDS COMMITTEE ON MECHANICAL VIBRATION AND SHOCK, S2

U.S. TAG FOR ISO/TC 108
MECHANICAL VIBRATION AND SHOCK

Ottawa, Canada

19 May 1993



93-27606

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## **MINUTES**

ACCREDITED STANDARDS COMMITTEE ON MECHANICAL VIBRATION AND SHOCK, S2

U.S. TAG FOR ISO/TC 108 (including ISO/TC 108/SC1, ISO/TC 108/SC2, ISO/TC 108/SC3 and ISO/TC 108/SC5)

19 May 1993

The meeting was called to order by Mr. S.I. Hayek, Chair S2, at 9:15 A.M. in Salon L'Orangerie, Chateau Laurier, Ottawa, Canada.

### ORGANIZATIONAL MEMBERS PRESENT

Arrington, J.R.

Vice Chair, S2; ASA Alternate representative S2

Brenig, A.

ASA Standards Manager

Evans, D.J.

National Institute of Standards and Technology (NIST)

Hayek, S.I.

Chair S2

## **INDIVIDUAL EXPERTS PRESENT**

Eldred, K.M.

Chair ASACOS, ASA Standards Director

## **OTHERS PRESENT**

Collier, R.D.

**Tufts University, Massachusetts** 

Echeverria, J.S.

National Centre of Metrology (CENAM) Mexico

Embleton, T.F.W.

Vice Chair, ASACOS

Silva, G.

National Centre of Metrology (CENAM) Mexico

Chair S1

Wong, G.S.K.

1. <u>Approval of the Minutes of the New Orleans, Louisiana meeting, held 3 November</u> 1992.

Upon motion made and seconded, it was

VOTED to approve the Minutes of the S2 meeting (<u>S2/247</u>) held on 2 November 1992, as circulated.

## 2. Organization

- a) A <u>list of current working groups</u> is attached (see <u>ATTACHMENT A</u>).
- b) New Organizational Members of S2 None to date.
- c) New working groups None to date.
- d) Personnel changes: None to date.
- e) A <u>summary of activities</u> is given in <u>ATTACHMENT B</u>.
- 3. Standards approved by ANSI in 1993 and published (or being published) by ASA

ANSI S2.48-1993 Servo-hydraulic test equipment for generating vibration, Method of describing characteristics.

Standards published by ASA can be ordered from the following address:

Professional Book Distributors (PBD)
ASA Standards Distribution Center
1650 Bluegrass Lakes Parkway
Alpharetta, Georgia 30239

Telephone: (404) 442-8631 Telefax: (404) 442-9742

NOTE: 20% discount on list price is available to ASA individual and sustaining members for all standards published by ASA.

- 4. <u>Organizational matters and reports on working groups, including reports on letter ballots and international matters</u>
  - a) S2/Advisory Advisory Planning Committee to S2 J.R. Arrington, Chair

At the meeting, Mr. Arrington said he would prepare a plan by 30 June 1993, taking into account those ISO (ISO/TC 108) standards which could be considered for conversion to national standards. Ms. Brenig will provide a listing of these standards to the Chair and Vice Chair of S2.

It has been decided to form an <u>EDITORIAL COMMITTEE in S2 (S2 EDITORIAL)</u> whose business will be solely devoted to the idea of converting new international standards to national standards. There may be several mechanisms to achieve this, which will be explored with ANSI.

The current list of S2 standards is given in ATTACHMENT C.

b) <u>S3/WG39 (S2) - Human Exposure to Mechanical Vibration and Shock - H.E. von Gierke, Chair (Counterpart to ISO/TC 108/SC4)</u>

The <u>last meeting of ISO/TC 108/SC4</u> was held from 29 March to 1 April 1993, in London, U.K..

It was reported that this meeting was most successful with seven (7) documents reaching the stage of circulation as Draft International Standards. The national working group met on Tuesday, 18 May 1993, but without any participation. Mr. von Gierke has underscored that, with the work most active in the international arena, the U.S. should try to utilize the international standards and convert them to usage as national standards (see above, under \$2/Advisory).

c) <u>\$2/WG54 - Atmospheric Blast Effects - J.W. Reed, Chair; J.H. Keefer, Vice Chair</u>

Mr. Reed reported previously that a refined model for airblast damage versus incident over pressure had been developed and validated for incorporation into the proposed revision of ANSI S2.20-1983 (R 1989).

This standard was submitted to ISO/TC 43/SC1 for consideration as an ISO Standard.

Mr. Reed also attended the London meeting of ISO/TC 108 (22 March to 2 April 1993) as a result of which a new work item has been proposed for TC 108. The work item is entitled <u>ESTIMATING AIR BLAST CHARACTERISTICS</u>, PROPAGATION, AND EFFECTS FROM EXPLOSIONS.

The work item will be submitted to ISO/TC 108 for vote, and to ISO/TC 43 for information. If approved, the item will come under new working group TC 108/WG22. This work item will nationally come under this working group.

- 4. <u>Organizational matters and reports on working groups, including reports on letter ballots and international matters (continued)</u>
  - d) S2/WG63 Vibration and Shock Isolators H. Himelblau, Chair; S. Rubin, Vice Chair

At the meeting, Mr. Hayek reported that he had received a document for ballot. This will be reviewed before final submission to S2.

e) <u>S2/WG65 - Balancing Technology - D.G. Stadelbauer, Chair (Counterpart to ISO/TC 108/SC1</u>

The last meeting of S2/WG65 was held on 11 January 1993 in New York City.

Mr. Stadelbauer has reported that S2/WG65 is presently working on revising and/or updating the following documents internationally:

ISO 1940 Part 2: Assessment of balance errors

ISO 3719 Balancing machines - Symbols for front panels

ISO 1925 Balancing - Vocabulary

ISO 5343 Criteria for evaluating flexible rotor balance

ISO 5406 Mechanical balancing of flexible rotors

The document on Susceptibility to Unbalance

ISO 2953 Balancing machines - Description and evaluation

The ANSI version of: ISO 8821 - Rotor shaft key convention has been drafted.

f) S2/WG66 - Methods of Acquiring, Analyzing and Presenting Vibration and Shock Data - (Vacant)

At the meeting, it was agreed that Mr. Hayek would ask Mr. Krishnappa to recommend a chair for this working group. Otherwise, it was decided to wait until the work on condition monitoring had been developed before pressing forward with this activity.

- 4. <u>Organizational matters and reports on working groups, including reports on letter</u> ballots and international matters (continued)
  - g) S2/WG67 Measurement and Evaluation of Vibration and Shock in Land Vehicles F. Chen, Chair

At the meeting, it was noted that there were still tasks to be accomplished in this area.

h) S2/WG69 - Seismic testing - G.E. Heberlein, Jr., Chair

Mr. Heberlein previously reported that the working group had been set up to address the preparation of the international (IEC) standard for the development of a seismic test standard. Since the IEC standard has now been produced, Mr. Heberlein has recommended that the working group be disbanded.

It was decided previously that the work in this area was too important to disband, despite international cessation of activity within IEC. Several points were made:

- 1) We should obtain the standards produced (perhaps via Mr. Goldberg, Chairman of IEC/SC50A) to prepare national counterpart standards within S2;
- 2) We should consider the tasks of this working group in several parts:
  - (i) low frequency testing, and
  - (ii) earth or water-borne frequencies

It was agreed that Mr. Hayek would organize a review of this working group and plan its revamping in line with U.S. interests.

At the meeting, Mr. Echeverria (from Mexico) said he would talk to people in this area in Mexico. Mr. Eldred noted that there was considerable interest in the nuclear power community in this activity, and that Wyle Laboratories used to be active in the field. Mr. Hayek said he would also be contacting the NRC on this matter.

i) S2/WG72 - Vibration Testing - L. Herstein, Chair; G. Booth, Vice Chair (Counterpart to ISO/TC 108/WG4 and IEC/SC50A)

ANSI Standard \$2.48-199X: Servo-hydraulic test equipment for generating vibration-Method of describing characteristics was sent to ballot (LB/S2.48/241) on 25 June 1992. The ballot was closed on 6 August 1992 with results as given in the previous Minutes (\$2/247). The proposed standard is now being processed to the next stage of approval within ANSI.

- 4. Organizational matters and reports on working groups, including reports on letter ballots and international matters (continued)
  - j) <u>S2/WG73 Characterization of Damping Materials (Vacant) (Counterpart to ISO/TC 108/SC2/WG13) (vacant)</u>

At the meeting, it was decided to convert the current ISO standard to a national standard.

k) S2/WG74 - Measurement of Mechanical Mobility. P.K. Baade, Chair

After discussion at the meeting, it was decided that Mr. Hayek would inquire when it would be timely to set up the new working group on Modal Analysis and Modal Testing.

It was agreed that actions should be set in motion to correct our national standards (with Mr. Baade and Mr. Ahlin, chairs of the national and international working groups, respectively, to be in communication). After these efforts, the national working group could be disbanded.

S2/WG76 - Measurement and Evaluation of Machinery Vibration - P.H. Maedel.
 Chair (Counterpart to ISO/TC 108/SC2/WG1)

Mr. Maedel reported prior to the meeting (see ATTACHMENT D).

The working group last met on 5 March 1993 in Media, Pennsylvania.

m) S2/WG77 - Measurement and Evaluation of Ship Vibration - P. Shang, Chair, A.F. Killcullen, Vice Chair (Counterpart to ISO/TC 108/SC2/WG2)

With Mr. Kilcullen's retirement, he recommended that Mr. Shang succeed him as Chair; but has agreed to stay on as Vice Chair. Mr. Shang will also serve as the U.S. TAG Chair for TC 108/SC2. Messrs. Kilcullen, Shang, and Taddeo respectively attended the meeting of ISO/TC 108 and its Subcommittees, which took place in London, U.K. from 22 March to 2 April 1993.

Previously, it was noted that the scope of this working group did not address off-shore platforms. Mr. Muster had said that the problem was that neither S2 nor ISO/TC 108 was active in the area where one looks at structure-borne vibration.

It was also agreed that a scope review for S2/WG77 was in order and that, if broadened to include the area noted, there should be liaison with the other groups involved.

- 4. Organizational matters and reports on working groups, including reports on letter ballots and international matters (continued)
  - n) <u>\$2/WG78 Measurement and Evaluation of Structural Vibration D. Siskind,</u> Chair (Counterpart to ISO/TC 108/SC2/WG3)

It was suggested previously that the title of this working group should include the word "stationary" e.g. "Measurement and Evaluation of Vibration in Stationary Structures". The working group will therefore be asked to review its title and scope. The latter would also require modification so that buildings, bridges and dams are listed as part of the activities of this working group.

Mr. Siskind has written to his working group on this subject (see ATTACHMENT E). See ATTACHMENT A for listing of revised scope.

o) S2/WG79 - Characterization of the Dynamic Mechanical Properties of Viscoelastic Polymers - W. Reader, Chair; W. Madigosky, Vice Chair

Mr. Collier reported at the meeting that this working group had not met (due to illness of Mr. Reader).

p) <u>\$2/WG80 - Vibration and Shock Terminology - D. Muster, Chair (Counterpart to ISO/TC 108/WG1)</u>

ISO 2041:1990 Vibration and Shock - Vocabulary, was published as an international standard. The standard is to be prepared as a proposed ANSI standard and circulated to S2 shortly for ballot.

At the meeting, Mr. Eldred suggested that if, by the time of the October 1993 meeting, the document had not yet been received, then the international standard, ISO 2041-1990, should be prepared for national ballot.

The letter ballot sent to Accredited Standards Committee S1, Acoustics on the proposed revision of ANSI S1.1-1960 (R 1976) Acoustical Terminology, draft dated March 1993, was also circulated to S2 (\$2/249) for information and comment. Comments on this document were requested by no later than the close of the S1 ballot, 7 May 1993.

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Appendix

- 4. Organizational matters and reports on working groups, including reports on letter ballots and international matters (continued)
  - q) <u>\$2/WG81 Use and Calibration of Vibration and Shock Measuring Instruments B. Douglas, Chair; M. Gross, Vice Chair (Counterpart to ISO/TC 108/SC3)</u>
    - Mr. Douglas reported prior to the meeting as follows:

A meeting of S2/WG81 was held on 2 November 1992 in New Orleans to discuss the disposition of a three part standard on the calibration of shock and vibration pickups. Progress on this three part standard has slowed due to the resignation of Mr. Chandy. However, Mr. Evans, NIST, agreed to pick up part of the work of Mr. Chandy, also that a draft of Part 1 can be completed before the end of the year. Mr. Chandy was replaced as Vice Chair of S2/WG81 by Mr. Mike Gross of Endevco.

Mr. Douglas prepared the fifth working draft of a proposed ANSI and ISO standard entitled "Radial Rotating Shaft Vibration Measuring Systems Part 1 Relative and Absolute Signal Sensing" for discussion at the last ISO/TC 108 meeting in London. Mr. Mark Gilstrap, Bently Nevada, joined the chairman and vice chairman of S2/WG81 as representatives to the TC 108/SC3 meetings.

- r) S2/WG83 Acoustic Vibration Testing G. Getline, Chair (Counterpart to IEC/SC50A/WG11)
  - Mr. Getline reported prior to the meeting as follows:

Having received no reply from G.B. Robinson, Secretary to IEC/SC50A/WG11 re my letter dated 4 June 1991, I submitted a follow-up in November 1992. As of this date, 1 March 1993, I have received no reply. I am presently planning to contact other members of WG11 for information.

s) <u>S2/WG84 - Counterpart to IEC/SC50A/WG12 - Revision of the Dynamic Tests - Bump, Shock, etc..., of IEC Publication 68 - (Vacant)</u>

It was previously decided to see who in the U.S. (government or military) would be interested in this activity (and that of S2/WG85, below).

- 4. Organizational matters and reports on working groups, including reports on letter ballots and international matters (continued)
  - t) S2/WG85 General Counterpart to IEC/SC50A (Vacant) (continued)

See above working group report (S2/WG84).

Eighteen months ago (at the November 1991 meeting), it was agreed that:

- 1) the two working groups, S2/WG84 and S2/WG85, should be amalgamated into one working group;
- 2) a determination should be made of which IEC/SC50A standards are used in the U.S.;
- 3) the IEC/SC50A standards should then be reviewed from the standpoint of conversion to national standards; and
- 4) there should be a chair for the working group who both understands IEC and can help to process the documents within S2. (Mr. Brockman, Technical Advisor for IEC/SC50A was suggested for this position.)

At the meeting, Mr. Hayek said he would call Mr. Brockman and see what we should do. Mr. Eldred said we should either activate our role vis-a-vis IEC/SC50A, or give it up, and retain a minor coordinating function. It was noted that Mr. Booth might be able to assist in locating another group (e.g. the Institute of Environmental Sciences - IES) to do the work. (See also item 6(a) on page 12).

- u) <u>\$2/WG86 Methods for Measuring and Reporting Vibration and Shock Resistance of Motion-Sensitive Equipment D. Alcoe, Chair (Counterpart to ISO/TC 108/SC2/WG16).</u>
  - Mr. D. Alcoe has taken over Chairmanship of this working group, which corresponds to TC 108/SC2/WG16 internationally.

- 4. <u>Organizational matters and reports on working groups, including reports on letter ballots and international matters (continued)</u>
  - v) <u>\$2/WG87 Snock Testing Machines (Counterpart to ISO/TC 108/WG15) R.</u>
    Bowser, Chair

This working group was established to coordinate activity with the international working group which has produced a standard (ISO 8568:1989).

Previously it was decided, based on Mr. Bowser's information, that he should be asked to present a <u>proposal for the desired change of title and scope</u> of his working group. This will be reviewed by the S2 Chair and subsequently sent to S2 ballot.

w) <u>\$2/WG88 - Measurement and Evaluation of Machine Tool Vibration - J.H. Pyne.</u>
Chair

A report was received from Mr. Pyne as follows:

Procedures for measurement evaluation of individual machine components is nearly completed. Work is being done on procedures for vibration evaluation on an assembled machine.

It is anticipated that a preliminary draft document will be available by Spring 1994.

The working group met on 11-12 May 1993, at the General Motors Technical Center, in Warren, Michigan.

- 5. International Organization for Standardization (ISO)
  - (a) International Organization for Standardization (ISO) Technical Committee ISO/TC 108 on Mechanical Vibration and Shock D. Muster, U.S. Technical Advisor
    - (i) General

International documents processed by the Standards Secretariat are listed in ATTACHMENT\_F.

## 5. International Organization for Standardization (ISO) (continued)

- (a) International Organization for Standardization (ISO) Technical Committee
  ISO/TC 108 on Mechanical Vibration and Shock D. Muster, U.S. Technical
  Advisor (continued)
  - (ii) Change in scope of ISO/TC 108 and corresponding change in scope for S2

Previously, mention was made of the ballot taken in S2 (LB/S2/215) circulated on 11 January 1991 and closed on 22 February 1991 endorsing the current activities of ISO/TC 108 and proposal for expansion of the ISO/TC 108 scope, to include condition monitoring and diagnostics of machines.

Official note of the change to the scope of ISO/TC 108 was received in a letter from ISO dated 6 May 1992, relaying the actions of the ISO Technical Management Board at its March 1992 meeting.

Since ISO/TC 108 had now voted to change its scope to include condition monitoring and diagnostics of machines (for which ISO/TC 108/SC5 was established by ISO in February 1993), it was proposed that S2 make a corresponding change of scope to be aligned with that of its international counterpart, ISO/TC 108. The amended scope would include condition monitoring and diagnostics of machines but exclude those aspects which pertain to biological safety, tolerance and comfort, which are under Accredited Standards Committee S3, Bioacoustics.

Following discussion, and upon motion made and seconded at the last meeting, it was voted that the scope of S2 be changed to include the field of condition monitoring and diagnostics of machines.

The proposed change in scope for Accredited Standards Committee S2 on Mechanical Shock and Vibration, was balloted in S2 (LB/S2/243) on 1 July 1992 and closed on 21 August 1992 with results as given in the previous Minutes (S2/247). The scope change was submitted to ANSI for formal approval, under ANSI procedures, ANSI approved the scope change for S2 on 18 February 1993. (The letter from ANSI approving the scope is given in ATTACHMENT G.) The updated scope listing is given in ATTACHMENT A.

At the last meeting, it was noted that the reorganization of S2 would take place shortly and would most likely require some planning activities to set up the needed structure. Also, since S2 had now voted to accept all ten (10) new work item proposals for TC 108 (on behalf of the United States) - see Item 5 (a) (iii) on page 13), in the area of condition monitoring and diagnostics of machines, these items would have to be reviewed for their subsequent organization and assignment within S2.

## 5. International Organization for Standardization (ISO) (continued)

(a) International Organization for Standardization (ISO) - Technical Committee
ISO/TC 108 on Mechanical Vibration and Shock - D. Muster, U.S. Technical
Advisor (continued)

## (iii) New work item proposals for ISO/TC 108

A summary of new work item proposals for ISO/TC 108 was given in the last Minutes (S2/247). These new work item proposals were circulated to Accredited Standards Committee S2 (the U.S. TAG for ISO/TC 108), via letter ballot (LB/S2/245) on 2 September 1992. The ballot was closed on 14 October 1992 with results as given in the previous Minutes (S2/247).

The ten (10) new work item proposals were also submitted to the U.S. TAG Chairs for ISO/TC 108/SC1, SC2, SC3, and SC4 for their input to the U.S. TAG Chair, by the due date of 14 October 1992.

As a result of the vote in S2, the U.S. TAG for ISO/TC 108, the ten (10) new work item proposals for ISO/TC 108 were approved by the U.S.. Internationally, the work item proposals were also approved by ISO/TC 108.

## 6. International Electrotechnical Commission (IEC)

(a) <u>IEC/SC50A Shock and Vibration Tests - I. Brockman Technical Advisor - D.</u>
<u>Muster, U.S. Deputy Technical Advisor</u>

Mr. Brockman was appointed by the U.S.N.C. of IEC to succeed Mr. Carter as Technical Advisor for IEC/TC 50 and its Subcommittees (December 1990). Mr. Douglas Muster is Deputy Technical Advisor to IEC/SC50A Shock and Vibration Tests. Messrs. Brockman and Muster previously agreed to submit a letter or document for S2 which would disclose a plan for the activities and interaction of S2 and the U.S. TAG for IEC/SC50A (S2 was assigned official responsibility for this IEC Subcommittee by ANSI).

(see also Item 4 (t), page 9 of these Minutes.)

## 7. Review of Standards more than five years in existence

Section 4.4 of the ANSI Procedures for the Development and Coordination of American National Standards requires that each complete American National Standard (including its supplements and addenda) be reviewed at least every five (5) years to determine whether it should be reaffirmed, revised, or withdrawn. Provision is made for extensions of time, except that no extension is granted beyond ten (10) years from the date of approval by ANSI.

## 8. New International Standards Available from ANSI

ISO 10326-1: 1992 Mechanical vibration - Laboratory method for evaluating vehicle seat vibration. Part 1: Basic requirements.

Documents from other organizations submitted to S2 for vote and/or comment
 None to date.

## 10. Procedural Ballots

a) According to ANSI's procedures, under which the Accredited Standards Committees operate, the Officers of the Standards Committees are to be confirmed (at the beginning of their terms), as well as Individual Experts (the latter to be confirmed annually) by the respective Standards Committees.

The Officers and Individual Experts are proposed by the ASA Committee on Standards (ASACOS), as the Secretariat for the Standards Committees, in connection with the Chairs of the respective Standards Committees.

A letter ballot was circulated to Accredited Standards Committee S2 on 18 December 1992 (LB/S2/248) on the proposed appointments for 1993/1994. The ballot was closed on 29 January 1993 with results as given in ATTACHMENT H. With the results unanimously for approval, the respective appointments will therefore take effect following the May 1993 meeting of ASA.

### 11. Other Business

- a) S2 should decide whether to form a working group to consider the revision of S9.1 ANSI Standard Guide for the Selection of Mechanical Devices used in Monitoring Acceleration Induced by Shock. It was previously agreed that the scope of the standard should be examined closely before deciding whether to form an S2 working group.
- b) Review of the S2 organization

At the last meeting, the need for more organizational members for S2 was stressed.

c) Project Initiation Notification System (PINS) forms requested by ANSI

The Standards Secretariat has provided ANSI with a current list of <u>S2</u> projects for use under the ANSI's Project Initiation Notification System (PINS). These are expected to be tabulated in a computerized system eventually by ANSI.

## 11. Other Business (continued)

d) The activities of the <u>Shock and Vibration Information Analysis Center (SAVIAC)</u> are noted.

## 12. Future Meetings

The next meeting of S2 will be held on Wednesday, 6 October 1993, in Denver, Colorado, commencing at 9:00 A.M.

## 13. Adjournment

The meeting was adjourned at 10:30 A.M.

AVII Brenig

Standards Manager

## ACOUSTICAL SŒIETY OF AMERICA

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## ACCREDITED STANDARDS COMMITTEE ON MECHANICAL VIBRATION AND SHOCK - S2

**SECRETARIAT: Acoustical Society of America** 

SCOPE:

Standards, specifications, methods of measurement and test, and terminology in the fields of mechanical vibration and shock, and condition monitoring and diagnostics of machines, but excluding those aspects which pertain to

biological safety, tolerance and comfort.

**CHAIR:** 

S.I. Hayek

**Applied Research Laboratory** 

**Penn State University** 

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SECRETARY: A. Brenig

Standards Secretariat

**Acoustical Society of America** 

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**WORKING GROUP** 

TITLE AND SCOPE

**CHAIR** 

J.R. Arrington

(a) S2/Advisory

S2 Advisory Planning Committee - Be cognizant of standards needs within the scope of the Committee, and organize those needs in accordance with priority, and other relevant factors, into a coherent three year plan for Committee activity. This three year plan for the preparation of standards should include those which need updating, having regard to the international work items and standards, and the need for timely review (reaffirmations, revisions, withdrawals, etc.) of all national standards, and the priority of new standards needs.

The plan of action should be developed with attention to (i) the overall Committee scope, (ii) its technological needs, (iii) the relation of national to international standardization, (iv) the rate of development of new standards, and (v) the timeliness of the preparation of revisions of standards.

WORKING GROUP	TITLE AND SCOPE	CHAIR
(b) \$3/WG39 (\$2)	Human Exposure to Mechanical Vibration and Shock (counterpart to ISO/TC 108/SC4) - Standardization in the field of shock, vibration and related biodynamic environments with regard to health, safety, performance and comfort criteria and guidelines regarding the effects of occupational and non-occupational exposures on the human population (environments of primary interest are: vibration, rotational oscillations, shock and impact transmitted to the whole-body or parts thereof). Preparation of standard terminology and characterization of the biodynamic properties of humans with and without support and restraint devices by means of biodynamic models or analogues is also included as a basis for the description of the physical, behavioral and physiological effects of the mechanical environments under consideration.	H.E. von Gierke
(c) S2/WG54	Atmospheric Blast Effects - Source, propagation and effects of airblast waves.	J.W. Reed J.H. Keefer Vice Chair
(d) S2/WG63	<u>Vibration and Shock Isolators</u> - Revision of ANSI S2.8-1972 Guide for Describing the Characteristics of Resilient Mountings.	H. Himelblau S. Rubin Vice Chair
(e) S2/WG65	Balancing Technology (counterpart to ISO/TC 108/SC1 - Prepare standards on dynamic balancing and balancing machines, including related hardware, procedures and terminology, monitor existing standards, and suggest modifications where appropriate.	D.G. Stadelbauer
(f) S2/WG66	Methods of Acquiring, Analyzing and Presenting Vibration and Shock Data - Acquisition, analysis, and presentation of shock and vibration data.	(vacant)

WORKING GROUP	TITLE AND SCOPE	CHAIR
(g) S2/WG67	Measurement and Evaluation of Vibration and Shock in Land Vehicles  Measurement, analysis and classification of vibration and shock with regard to all forms of land vehicles. This shall include vibration and shock sources, their transmission paths, and the end results. It shall include computer and laboratory simulations as well as the vehicle itself.	<u>F. Chen</u>
(h) S2/WG69	Seismic Testing (counterpart to IEC/SC50A/WG8) - To produce a seismic test standard for electrical and communication equipment.	G.E. Heberlein
(i) S2/WG72	Vibration Testing (counterpart to ISO/TC 108/WG4 and IEC/SC50A) - To develop standards for vibration testing equipment, including hydraulic testing equipment and auxiliary tables for generating vibration; to develop standards related to shock and vibration tests, and to interact with parallel ISO and IEC working groups.	L. Herstein G. Booth, Vice Chair
(j) S2/WG73	Characterization of Damping Materials (counterpart to ISO/TC 108/SC2/WG13) - Damping configuration in a structural system; nomenclature for specifying the damping properties of materials; and characterization of damping materials.	(vaçant)
(k) S2/WG74	Measurement of Mechanical Mobility - Laboratory procedures, instrument calibration and evaluation necessary for making accurate mechanical mobility measurement.	P.K. Baade
(I) S2/WG76	Measurement and Evaluation of Machinery Vibration (counterpart to ISO/TC 108/SC2/WG1) - Development of standards for the measurement and evaluation of mechanical vibration of general classes of machines. The characteristics of the machine, instrumentation, measurement and evaluation procedures shall be considered.	P.H. Maedel
	The evaluation of machine vibrations shall include acceptance testing, operational monitoring, and consideration of the structural integets of the machine. Consideration will also be given to the effect of the environment on the machine and the machine on the environment.	

WORKING GROUP	TITLE AND SCOPE	CHAIR
(m) S2/WG77	Measurement and Evaluation of Ship Vibration (counterpart to ISO/TC 108/SC2/WG2) - Establishing a basis for specifying evaluation standards for vibration in ships including measuring procedures.	A. Kilcullen
(n) S2/WG78	Measurement and Evaluation of Structural Vibration (counterpart to ISO/TC 108/SC2/WG3) - Measurement and evaluation of vibrations and shock response of stationary structures including but not limited to buildings, dams, bridges, and towers. Vibration and shock may be transmitted in the structure by the ground, air, or generated within the structure itself.	D. Siskind
(o) S2/WG79	Characterization of the Dynamic Mechanical Properties of Viscoelastic Polymers - Measurement procedures, instrument calibration, data processing algorithms, and data reporting formats for dynamic properties of viscoelastic polymers. Properties of interest include the complex shear, Young's, and bulk moduli; the Lame' constants, Poisson's ratio, and the frequency-temperature shift functions obtained through application of the time-temperature superposition principle.	W. Reader W. Madigosky, Vice Chair
(p) S2/WG80	Vibration and Shock Terminology (counterpart to ISO/TC 108/WG1) - Development of standard terminology in the area of mechanical vibration and shock.	D. Muster
(q) S2/WG81	Use and Calibration of Vibration and Shock  Measuring Instruments (counterpart to ISO/TC 108/ SC3) - Standardization in the field of use and calibration of mechanical vibration and shock measuring instruments.	B. Douglas
(r) S2/WG83	Acoustic Vibration Testing (counterpart to IEC/ SC50A/WG11) - Response on international documents, including the revision of iEC/SC50A(Secretariat)199.	G. Getline
(s) S2/WG84	Counterpart to IEC/SC50A/WG12 - Revision of the dynamic tests - bump, shock, etc. of IEC Publication 68 (Documents Ea, Eb, Ec, Ed and Ee).	(vacant)
(t) S2/WG85	General Counterpart to IEC/SC50A - Standardization in the area of shock and vibration tests; U.S. response on international documents.	(vacant)

**WORKING GROUP** TITLE AND SCOPE **CHAIR** Methods for Measuring and Reporting Vibration and D. Alcoe (u) S2/WG86 **Shock Resistance of Motion-Sensitive Equipment** (counterpart to ISO/TC 108/SC2/WG16) - Methods and standard format for measuring and reporting vibration and shock resistance of motion-sensitive equipment such as digital computers, electron microscopes, and their components. (v) S2/WG87 **Shock Testing Machines** - The development of standards R. Bowser for shock testing machines; interaction with parallel ISO standards. (w) S2/WG88 Measurement and Evaluation of Machine Tool J.H. Pyne Vibration - Development of a standard for the measurement and evaluation of mechanical vibrations of machine tools and associated apparatus. The characteristics of the machines, instrumentation, measurement and evaluation procedures shall be considered and vibration level criteria for machine tool acceptance, established. The evaluation of vibration shall include acceptance testing and condition monitoring for maintenance. Consideration shall also be given to the effect of foundation and environment on the machine and the machine on the environment.

## ATTACHMENT B-1 S2/251

## STATUS REPORT

	STATUS: MECHANI S2	MECHANICAL VIBRATION AND SHOCK				
				VINITO	On Line	COMMENTS OR EXPECTED DATE OF SUBMISSION
SUB	SUBJECT OR TITLE		SIAIUS	ACIIVII	MEINOU	
Cal Me Vib	Calibration of Shock and Vibration Pick-ul Methods for the Calibration of Shock and Vibration Pickups	Calibration of Shock and Vibration Pick-ups, Methods for the Calibration of Shock and Vibration Pickups	UD;SP	0	σ	
F S E	High-Impact Shock Machines for Electro Specifications for a High-Impact Shock Electronic Devices	High-Impact Shock Machines for Electronic Devices, Specifications for a High-Impact Shock Machine for Electronic Devices	g,	0	တ	
ි දී දී	Specifying the Characteristics of Auxilia for Shock and Vibration Measurements, (revision of S2.4-1982) (S2/WG72)	Specifying the Characteristics of Auxiliary Equipment for Shock and Vibration Measurements, Methods for (revision of \$2.4-1982) (\$2/WG72)	9	0	တ	
Q % ≥	Specifying the Perform Recommendation for S Vibration Machines	Specifying the Performance of Vibrating Machines, Recommendation for Specifying the Performance of Vibration Machines	On .	0	v	
STATUS NS - NEW STD IN PROCESS RF - REAFFIRMATION IN PROC. RV - REVISION IN FROCESS WD - WITHURAWAL IN PROCESS ES - ENVIRONMENTAL SOUND SP - SUBMITTED PINS FORM	<b>&amp;</b> 8	ACTIVITY AP - ANSI APPROVED 1-FORMATIVE STAGE OP - OUT OF PRINT 2-DRAFTING STANDARD NA - NOT YET AVAIL. 3-VOTING ON PROPOSAL UD - UP-TO-DATE	<b>&gt;</b> ,	4-ANSI STANDARDS ACTION 5-OBJECTIONS BEING CONSIDERED 6-ANSI CONSIDERING APPROVAL	ACTION CONSIDERED APPROVAL	METHOD C-ACCREDITED CANVASS O-ACCREDITED ORGANIZATION S-ACCREDITED STDS. COMMITTE X-NOT INTENDED FOR ANSI

HANICAL VIBRATION AND SHOCK	
STATUS: MECH	
FIELD:	

COMMITTEE: S2

DESIGNATION/ EDITION	SUBJECT OR TITLE	STATUS	ACTIVITY ME	МЕТНОВ	COMMENTS OR EXPECTED DATE OF SUBMISSION TO ANSI
S2.6-1963 (R 1976)	Nomenclature and Symbols for Specifying the Mechanical Impedance of Structures (S2/WG74)	Withdrawn		Ø	Superseded by S2.31- 1979 (see below)
S2.7-1976 (R 1986)	Balancing Terminology (S2/WG65)	g S	•	Ø	
S2.8-1972 (R 1986)	Resilient Mounting, Guide for Describing the Characteristics of (S2/WG63)	RV;ES	<b>V</b> -	S	
S2.9-1976 (R 1990)	Specifying Damping Properties of Materials, Nomenclature for (S2/WG73)	gn .		s	
S2.10-1971 (R 1990)	Analysis and presentation of Shock and Vibration Data, Methods for (S2/WG66)	9	•	v	
STATUS NS - NEW STD IN PROCESS RF - REAFFIRMATION IN PROC. RV - REVISION IN PROCESS WD - WITHDRAWAL IN PROCESS ES - ENV:RGNMENTAL SOUND SP - SUBMITTED PINS FORM	STATUS  CESS  IN PROC.  AP - ANSI APPROVED  1-FORMATIVE STAGE  OP - OUT OF PRINT  2-DRAFTING STANDARD  IN PROCESS  NA - NOT YET AVAIL.  2-ORAFTING ON PROPOSAL  2-ORAFTING STANDARD  1-FORMATIVE STAGE  3-VOTING ON PROPOSAL  5-FORM		4-ANSI STANDARDS ACTION 5-OBJECTIONS BEING CONSIDERED 6-ANSI CONSIDERING APPROVAL		C-ACCREDITED CANVASS O-ACCREDITED ORGANIZATION S-ACCREDITED STDS. COMMITTEE X-NOT INTENDED FOR ANSI

## ATTACHMENT B-3 S2/251

## STATUS REPORT

MECHANICAL VIBRATION AND SHOCK

STATUS:

COMMITTEE:	25						
DESIGNATION/ EDITION	SUBJECT OR TITLE	TLE		STATUS	ACTIVITY	METHOD	COMMENTS OR EXPECTED DATE OF SUBMISSION TO ANSI
S2.11-1969 (R 1989)	Calibration and used for Measur (\$2/WG81)	Calibration and Tests for Electrical Transducers used for Measuring Shock and Vibration, Select (S2/WG81)	l Transducers vration, Selection of	<u>a</u>		os	
\$2.12	Vibration Test for Components	Vibration Test for Electrical Equipment Components	nent	A A	0	S	
\$2.13	Shock Test for	Shock Test for Electronic Equipment Components	ent Components	Status Unknown	0	S	
52.14-1973	Performance of Shock Ma Specifying the (S2/WG87)	Performance of Shock Machines, Methods for Specifying the (S2/WG87)	Methods for	gn On		Ø	
	STATUS		ACTIVITY	ITV			METHOD
NS - NEW STD IN PROCESS RF - REAFFIRMATION IN PROC. RV - REVISION IN PROCESS WD - WITHDRAWAL IN PROCESS ES - ENVIRONMENTAL SOUND SP - SUBMITTED PINS FORM		NR - NEEDS REVIEW AP - ANSI APPROVED OP - OUT OF PRINT NA - NOT YET AVAIL. UD - UP-TO-DATE	0-NONE 1-FORMATIVE STAGE 2-DRAFTING STANDARD 3-VOTING ON PROPOSAL	_4	4-ANSI STANDARDS ACTION 5-OBJECTIONS BEING CONSIDERED 6-ANSI CONSIDERING APPROVAL	ACTION CONSIDERED APPROVAL	C-ACCREDITED CANVASS O-ACCREDITED ORGANIZATION S-ACCREDITED STDS. COMMITTE X-NOT INTENDED FOR ANSI

STATUS: MECHANICAL VIBRATION AND SHOCK

COMMITTEE	. S2						
DESIGNATION/ EDITION	IN/ SUBJECT OR TITLE	IR TITLE	Ø	STATUS	ACTIVITY	METHOD	COMMENTS OR EXPECTED DATE OF SUBMISSION TO ANSI
S2.15-1972 (R 1986)	Design, Construction and Ope HI (high-impact) Shock Testin Specifications for (S2/WG87)	Design, Construction and Operation of Class HI (high-impact) Shock Testing Machines, Specifications for (S2/WG87)	lass S,	g.		တ	
S2.16	Acoustic Environm Assemblies (forme	Acoustic Environmental Testing for Equipment Assemblies (formerly S2/WG43 (S1))	oment and		0	s	Activities dropped in S2
S2.17-1980 (R 1986)		Techniques of Machinery Vibration Measurement (S2/WG81)	urement	g,		S	
S2.18-199X	Mechanical Vibrati from 10 to 200 rev (counterpart to ISC	S2.18-199X Mechanical Vibration of Machines with Operating Speeds from 10 to 230 revs-Basis for Specifying Evaluation Stand (counterpart to ISO 2372-1974) (S2/WG76)	dards	NS;SP	2	v	Process of corversion; awaiting new text
STATI NS - NEW STD IN PROCESS RF - REAFFIRMATION IN PROC RV - REVISION IN PROCESS WD - WITHDRAWAL IN PROCE ES - ENVIRONMENTAL SOUND SP - SUBMITTED PINS FORM	STATUS NS - NEW STD IN PROCESS RF - REAFFIRMATION IN PROC. RV - REVISION IN PROCESS WD - WITHDRAWAL IN PROCESS ES - ENVIRONMENTAL SOUND SP - SUBMITTED PINS FORM	NR - NEEDS REVIEW AP - ANSI APPROVED OP - OUT OF PRINT NA - NOT YET AVAIL. UD - UP-TO-DATE	ACTIVITY 0-NONE 1-FORMATIVE STAGE 2-DRAFTING STANDARD 3-VOTING ON PROPOSAL		4-ANSI STANDARDS ACTION 5-OBJECTIONS BEING CONSIDERED 6-ANSI CONSIDERING APPROVAL	ACTION CONSIDERED APPROVAL	METHOD C-ACCREDITED CANVASS 0-ACCREDITED ORGANIZATION S-ACCREDITED STDS. COMMITTE X-NOT INTENDED FOR ANSI

STATUS: MECHANICAL VIBRATION AND SHOCK

COMMITTEE	25					
DESIGNATION/ EDITION	SUBJECT OR TITLE	G	STATUS	ACTIVITY	МЕТНОБ	COMMENTS OR EXPECTED DATE OF SUBMISSION TO ANSI
S2.19-1989	Balance Quality of Rigid Rotors (S2/WG65)		RV;SP		တ	
S2.20-1983	Estimating Airblast Characteristics for Explosions in Air, with a Guide to Eval Atmospheric Propagation and Effects	for Single Point Evaluation of cts (S2/WG54)	AP		v	
*224.21-1957 (R 1989)	Pick-ups for Shock and Vibration: Measurements, Methods for Specifying the Characteristics of (S2/WG81)	Measurements, cteristics of (S2/WG81)	WD		S	
S2.31-1979 (R 1986)	Measurement of Mechanical Mobility; (Supersedes S2.6-1963) (S2/MG74)	lity; <u>Part 1</u> 74)	Qn		v	
*S2 designation will be given upon revision STATUS	e given upon revision STATUS	ACTIVITY				METHOD
NS - NEW STD IN PROCESS RF - REAFFIRMATION IN PROC. RV - REVISION IN PROCESS WD - WITHDRAWAL IN PROCESS ES - ENVIRONMENTAL SOUND SP - SUBMITTED PINS FORM	DCESS NR - NEEDS REVIEW IN PROC. AP - ANSI APPROVED DCESS OP - OUT OF PRINT IN PROCESS NA - NOT YET AVAIL. L SOUND UD - UP-TO-DATE S FORM	0-NONE 1-FORMATIVE STAGE 2-DRAFTING STANDARD 3-VOTING ON PROPOSAL	4-AN 5-08 6-AN	4-ANSI STANDARDS ACTION 5-OBJECTIONS BEING CONSIDERED 6-ANSI CONSIDERING APPROVAL	CTION CONSIDERED APPROVAL	C-ACCREDITED CANVASS 0-ACCREDITED ORGANIZATION S-ACCREDITED STDS. COMMITTEE X-NOT INTENDED FOR ANSI

MECHANICAL VIBRATION AND SHOCK

STATUS:

COMMITTEE	. S2						
DESIGNATION/ EDITION	IN/ SUBJECT OR TITLE	OR TITLE		STATUS	ACTIVITY	МЕТНОБ	COMMENTS OR EXPECTED DATE OF SUBMISSION TO ANSI
S2.32-1982 (R 1990)	Methods for the Exper Mobility Part II: Measu Excitation (S2/WG74)	Methods for the Experimental Determination of Mechanical Mobility Part II: Measurements Using Single-Point Translational Excitation (S2/WG74)	tion of Mechanical gle-Point Translational	an		တ	
\$2.33	Measurement of Mechan Covering mobility measur rotational excitation at a intended for rotor torsion (CD 7626-III) (S2/WG74)	Measurement of Mechanical Mobility Part III: Covering mobility measurements using steady-sta rotational excitation at a single point. Primarily intended for rotor torsional resonance predictions (CD 7626-III) (S2/WG74)	t III: teady-state marily edictions	GS .		σ	
S2.34-1984 (R 1990)		ANSI Guide to the Experimental Determination Rotational Mobility Properties and the Complet Matrix, Part IV (CD 7626-IV) (S2/WG74)	nation of Implete Mobility	SP		S	
	STATUS		ACTIVITY	٨			МЕТНОО
NS - NEW STD IN PROCESS RF - REAFFIRMATION IN PRO RV - REVISION IN PROCESS WD - WITHDRAWAL IN PROC ES - ENVIRONMENTAL SOUN SP - SUBMITTED PINS FORM	NS - NEW STD IN PROCESS RF - REAFFIRMATION IN PROC. RV - REVISION IN PROCESS WD - WITHDRAWAL IN PROCESS ES - ENVIRONMENTAL SOUND SP - SUBMITTED PINS FORM	NR - NEEDS REVIEW AP - ANSI APPROVED OP - OUT OF PRINT NA - NOT YET AVAIL. UD - UP-TO-DATE	0-NONE 1-FORMATIVE STAGE 2-DRAFTING STANDARD 3-VOTING ON PROPOSAL		4-ANSI STANDARDS ACTION 5-OBJECTIONS BEING CONSIDERED 6-ANSI CONSIDERING APPROVAL	CTION CONSIDERED APPROVAL	C-ACCREDITED CANVASS O-ACCREDITED ORGANIZATION S-ACCREDITED STDS. COMMITTEE X-NOT INTENDED FOR ANSI

## ATTACHMENT B-7 S2/251

## STATUS REPORT

FIELD:	STATUS:	MECHANICAL VIBRATION AND SHOCK	ATION AND SHOCK				
COMMITTEE	S2						
DESIGNATION/ EDITION	N/ SUBJECT OR TITLE	R TITLE		STATUS	ACTIVITY	МЕТНОБ	COMMENTS OR EXPECTED DATE OF SUBMISSION TO ANSI
\$2.35	Measurement of Memobility measurement forcing functions we techniques for data	Measurement of Mechanical Mobility Part V: Covering mobility measurement using impact excitation and other forcing functions which use the same Fourier transform techniques for data reduction (DIS 7626-V) (S2/WG74)	t V: Covering ation and other urier transform	g.		<b>ဖ</b>	
\$2.36	Measurement of Mech (CD 7626) (S2/WG74)	Measurement of Mechanical Mobility <u>Part VI</u> (CD 7626) (S2/WG74)	ΙΝ	S.		ဟ	
\$2.37	Vibration and Shock - Vocal ISO 2041-1975 (S2/WG80)	Vibration and Shock - Vocabulary, Bilingual Edi ISO 2041-1975 (S2/WG80)	al Edition	NS;SP	-	<b>ပ</b>	
52.38-1982 (R 1990)	Field Balancing Equ Evaluation (counter	Field Balancing Equipment-Description and Evaluation (counterpart to ISO 2371-1974) (S2/WG65)	nd '4) (S2/WG65)	an		ဟ	
	STATUS		ACTIVITY	<b>\</b>			METHOD
NS - NEW STD IN PROCESS RF - REAFFIRMATION IN PROC. RV - REVISION IN PROCESS WD - WITHDRAWAL IN PROCE ES - ENVIRONMENTAL SOUND SP SUBMITTED PINS FORM	NS - NEW STD IN PROCESS RF - REAFFIRMATION IN PROC. RV - REVISION IN PROCESS WD - WITHDRAWAL IN PROCESS ES - ENVIRONMENTAL SOUND SP SUBMITTED PINS FORM	NR - NEEDS REVIEW AP - ANSI APPROVED OP - OUT OF PRINT NA - NOT YET AVAIL. UD - UP-TO-DATE	0-NONE 1-FORMATIVE STAGE 2-DRAFTING STANDARD 3-VOTING ON PROPOSAL		4-ANSI STANDARDS ACTION 5-OBJECTIONS BEING CONSIDERED 6-ANSI CONSIDERING APPROVAL	CTION CONSIDERED APPROVAL	C-ACCREDITED CANVASS O-ACCREDITED ORGANIZATION S-ACCREDITED STDS. COMMITTEE X-NOT INTENDED FOR ANSI

## ATTACHMENT B-8 S2/251

## STATUS REPORT

FIELD:	STATUS:	MECHANICAL VIBR	MECHANICAL VIBRATION AND SHOCK				
COMMITTEE	25						
DESIGNATION/ EDITION	N/ SUBJECT OR TITLE	OR TITLE		STATUS	ACTIVITY	METHOD	COMMENTS OR EXPECTED DATE OF SUBMISSION TO ANSI
S2.39	Balancing Machine (counterpart to IS(	Balancing Machines-Description and Evaluation (counterpart to ISO 2953-1975) (S2/WG65)	luation i65)	NS;SP	8	ဟ	Awaiting rev. test procedure; to be balloted
S2.40-1984 (R 1990)	Mechanical Vibrati Machinery-Require Vibration Severity	Mechanical Vibration of Rotating and Reciprocating Machinery-Requirements for Instruments for Measurement Vibration Severity (counterpart to ISO 2954-1975)	ciprocating for Measurement 354-1975)	g,		ဟ	
S2.41-1985 (R 1990)	Mechanical Vibration of Large I Speed Ranging from 10 to 200 Evaluation of Vibration Severity to ISO 3945-1977) (S2/WG76)	Mechanical Vibration of Large Rotating Machines with Speed Ranging from 10 to 200 revs-Measurement and Evaluation of Vibration Severity in situ (counterpart to ISO 3945-1977) (S2/WG76)	Aachines with Isurement and counterpart	9		Ø	
S2.42-1982 (R 1990)	Procedures for Balancing Flexib to ISO 5406-1980) (S2/WG65)	Procedures for Balancing Flexible Rotors (count to ISO 5406-1980) (S2/WG65)	(counterpart	<u>a</u>		Ø	
	STATUS		ACTIVITY				МЕТНОО
NS - NEW STD IN PROCESS RF - REAFFIRMATION IN PROC. RV - REVISION IN PROCESS WD - WITHDRAWAL IN PROCE ES - ENVIRONMENTAL SOUND SP - SUBMITTED PINS FORM	NS - NEW STD IN PROCESS RF - REAFFIRMATION IN PROC. RV - REVISION IN PROCESS WD - WITHDRAWAL IN PROCESS ES - ENVIRONMENTAL SOUND SP - SUBMITTED PINS FORM	NR - NEEDS REVIEW AP - ANSI APPROVED OP - OUT OF PRINT NA - NOT YET AVAIL. UD - UP-TO-DATE	O-NONE 1-FORMA (VE STAGE 2-DRAFTING STANDARD 3-VOTING OUTWYPOSAL	4-AN 6-AN	4-ANSI STANDARDS ACTION 5-OBJECTIONS BEING CONSIDERED 6-ANSI CONSIDERING APPROVAL	CTION CONSIDERED APPROVAL	C-ACCREDITED CANVASS O-ACCREDITED ORGANIZATION S-ACCREDITED STDS. COMMITTEE X-NOT INTENDED FOR ANSI

## ATTACHMENT B-9 \$2/251

## STATUS REPORT

FIELD:	STATUS:	MECHANICAL VIB	MECHANICAL VIBRATION AND SHOCK				
COMMITTEE	. \$2						
DESIGNATION/ EDITION	IN/ SUBJECT OR TITLE	IR TITLE		STATUS	ACTIVITY	METHOD	COMMENTS OR EXPECTED DATE OF SUBMISSION TO ANSI
S2.43-1984		Criteria for Evaluating Flexible Rotor Balance	впсе	an			
S2.44-199X	L.	Measurement and Evaluation of Mechanical Vibration of Machines with Services Speeds from 600-12,000 r.p.m. as Measured on Shafts (ISO/TC 108/SC2/WG1 N 22) (S2/N/C2/WG1 N 22)	ical Vibration 600-12,000 r.p.m. 2/WG1 N 22) (S2/WG76)	SP 76)	2	တ	
S2.45-1983 (R 1990)	Electrodynamic Te: Methods of Descril Equipment (counter	Electrodynamic Test Equipment for Generating Vibration, Methods of Describing the Characteristics of the Equipment (counterpart to ISO 5344-1980) (S2/WG72)	erating Vibration, cs of the 80) (S2/WG72)	9		တ	
S2.46-1989 (F 1991)	Characteristics to to counterpart to ISC	Characteristics to be specified for Seismic Tra (counterpart to ISO 8042-1989) (S2/WG81)	nic Transducers G81)	UD;RF		S	
S2.47-1990	Vibration of Buildin Vibration and Evalu	Vibration of Buildings - Guidelines for the Measurement of Vibration and Evaluation of Their Effects on Buildings (S2/	Vibration of Buildings - Guidelines for the Measurement of Vibration and Evaluation of Their Effects on Buildings (S2/WG78)	UD 78)		w	
ST.  NS - NEW STD IN PROCESS  RF - REAFFIRMATION IN PROFESS  RV - REVISION IN PROCESS  WD - WITHDRAWAL "I PRO ES - ENVIRONMENTAL SOU	STATUS NS - NEW STD IN PROCESS RF - REAFFIRMATION IN PROC. RV - REVISION IN PROCESS WD - WITHDRAWAL "I PROCESS ES - ENVIRONMENTAL SOUND	NR - NEEDS REVIEW AP - ANSI APPROVED OP - OUT OF PRINT NA - NOT YET AVAIL. UD - UP-TO-DATE	ACTIVITY 0-NONE 1-FORMATIVE STAGE 2-DRAFTING STANDARD 3-VCTING ON PROPOSAL		4-ANSI STANDARDS ACTION 5-OBJECTIONS BEING CONSIDERED 6-ANSI CONSIDERING APPROVAL	CTION CONSIDERED APPROVAL	METHOD C-ACCREDITED CANVASS O-ACCREDITED ORGANIZATION S-ACCREDITED STDS. COMMITTEE X-NOT INTENDED FOR ANSI

WD - WITHDRAWAL "N PROCESS ES - ENVIRONMENTAL SOUND SP - SUBMITTED PINS FORM

## ATTACHMENT B-10 S2/251

## STATUS REPORT

FIELD:	STATUS	MECHANICAL VIBRATION AND SHOCK	. al			
COMMITTEE	S2					
DESIGNATION/ EDITION	N/ SUBJECT OR TITLE	TITLE	STATUS	ACTIVITY	METHOD	COMMENTS OR EXPECTED DATE OF SUBMISSION TO ANSI
S2.48-199X		Servo-hydraulic test equipment for generating vibration - Method of describing characteristics	SN	9	w	
S2.XX	ISO 4867-1984 Code for the Measurement of Shipboard Vibration Data (S2/WG77)	for the Measurement and Reporting n Data (S2/WG77)	S.	2	v	
S2.XX	ISO 4868-1984 Code for the Measurement of Local Vibration Data of Ship Structures	for the Measurement and Reporting SP ta of Ship Structures and Equipment (S2/WG77)	SP (7777)	7	s	
S2.XX	ISO/DIS 5347 Method for the Calibration Vibration and Shock Pick-ups (S2/WG81)	ISO/DIS 5347 Method for the Calibration of Vibration and Shock Pick-ups (S2/WG81)	gs	7	S	
\$2.57	ISO 3719 Balancing Machines - Sym Panels - Trilingual Edition (S2/WG65)	ISO 3719 Balancing Machines - Symbols for front Panels - Trilingual Edition (S2/WG65)	g.		v	
	STATUS	ACTIVITY	\			METHOD

O-ACCREDITED ORGANIZATION S-ACCREDITED STDS. COMMITTEE

5-OBJECTIONS BEING CONSIDERED 6-ANSI CONSIDERING APPROVAL

1-FORMATIVE STAGE 2-DRAFTING STANDARD 3-VOTING ON PROPOSAL

AP - ANSI APPROVED OP - OUT OF FRINT NA - NOT YET AVAIL. UD - UP-TO-DATE

> WD - WITHDRAWAL IN PROCESS ES - ENVIRONMENTAL SOUND SP - SUBMITTED PINS FORM

RF - REAFFIRMATION IN PROC. RV - REVISION IN PROCESS

**NS - NEW STD IN PROCESS** 

4-ANSI STANDARDS ACTION

0-NONE

**NR - NEEDS REVIEW** 

C-ACCREDITED CANVASS

X-NOT INTENDED FOR ANSI

## ATTACHMENT B-11 S2/251

## STATUS REPORT

MECHANICAL VIBRATION AND SHOCK

STATUS:

COMMITTEE	. S2	~ : !	,	:			
DESIGNATION/ EDITION	IN/ SUBJECT OR TITLE	OR TITLE		STATUS	ACTIVITY	МЕТНОБ	COMMENTS OR EXPECTED DATE OF SUBMISSION TO ANSI
S2.58-1982 (R 1990)	ISO 6070-1981 Auxiliary 1 Generators-Methods C. De. Characteristics (S2/WG?2)	ISO 6070-1981 Auxiliary Tables for Vibration Generators-Methods c: Describing Equipment Characteristics (S2/WG?2)	ation nent	g		တ	
\$2.55	ISO 5348 Mechanical Mountin (Seismic Pick-ups) (S2/WG81)	ISO 5348 Mechanical Mounting of Accelerometers (Seismic Pick-ups) (S2/WG81)	erometers		7	တ	
S2.60-1987	Counterpart to IS and Other Safety	Counterpart to ISO 7475-Balancing Machines-Enclosures and Other Safety Measures (S2/WG65)	nines-Enclosures	9		ဟ	
S2.61-1989		Guide to the Mechanical Mounting of Accelerometers (S2/WG81)	celerometers	9		ဟ	
S9.1-1975	ANSI Standard Gi Used in Monitorin	ANSI Standard Guide for the Selection of Mechanical Devices RV Used in Monitoring Acceleration Induced by Shock (ASME Standard)	f Mechanical Devices by Shock (ASME Star	RV ndard)	-	Ø	
	STATUS		ACTIVITY				METHOD
NS - NEW STD IN PROCESS RF - REAFFIRMATION IN PROFESS KV - REVISION IN PROCESS WD - WITHDRAWAL IN PRO ES - ENVIRONMENTAL SOUI	NS - NEW STD IN PROCESS RF - REAFFIRMATION IN PROC. FV - REVISION IN PROCESS WD - WITHDRAWAL IN PROCESS ES - ENVIRONMENTAL SOUND SP - SUBMITTED PINS FORM	NR - NEEDS REVIEW AP - ANSI APPROVED OP - OUT OF PRINT NA - NOT YET AVAIL. UD - UP-TO-DATE	O-NONE 1-FORMATIVE STAGE 2-DRAFTING STANDARD 3-VOTING ON PROPOSAL		4-ANSI STANDARDS ACTION 5-OBJECTIONS BEING CONSIDERED 6-ANSI CONSIDERING APPROVAL	APPROVAL	C-ACCREDITED CANVASS O-ACCREDITED ORGANIZATION S-ACCREDITED STDS. COMMITTEE X-NOT INTENDED FOR ANSI

## ATTACHMENT B-12 \$2/251

## STATUS REPORT

FIELD:	STATUS:	MECHANICAL VIBR	MECHANICAL VIBRATION AND SHOCK				
COMMITTEE	Ē: S2						
DESIGNATION/ EDITION	ION/ SUBJECT OR TITLE	IR TITLE	S	STATUS	ACTIVITY	МЕТНОБ	COMMENTS OR EXPECTED DATE OF SUBMISSION TO ANSI
S2.XX	Specifying the Perf Controlled Vibration	Specifying the Performance of Shock Tests on Digitally Controlled Vibration Machines Using Shock Spectra and	Specifying the Performance of Shock Tests on Digitally Controlled Vibration Machines Using Shock Spectra and Related Criteria	Criteria	Ā	0	v
\$2.XX	Digital Methods for Vibration and Shoc	Digital Methods for Analysis and Presentation Vibration and Shock Data (S2/WG66)	ation of		AN	2	S
\$2.XX	Specification for D Shock and Vibratio	Specification for Digital Analyzers in Conjunction with Shock and Vibration Measurement (S2/WG66)	junction with VG66)		AN	2	v
S2.XX	Graphical Presentation Modulus (S2/WG73)	Graphical Presentation of Damping Material Complex Modulus (S2/WG73)	rial Complex		NA;ES SP	2	S
	STATUS		ACTIVITY				METHOD
NS - NEW STI RF - REAFIRI RV - REVISION WD - WITHDE ES - ENVIRON SP - SUBMITT	NS - NEW STD IN PROCESS RF - REAFFIRMATION IN PROC. RV - REVISION IN PROCESS WD - WITHDRAWAL IN PROCESS ES - ENVIRONMENTAL SOUND SP - SUBMITTED PINS FORM	NR - NEEDS REVIEW AP - ANSI APPROVED OP - OUT OF PRINT NA - NOT YET AVAIL. UD - UP-TO-DATE	0-NONE 1-FORMATIVE STAGE 2-DRAFTING STANDARD 3-VOTING ON PROPOSAL	4-ANS 5-OBJ 6-ANS	4-ANSI STANDARDS ACTION 5-OBJECTIONS BEING CONSIDERED 6-ANSI CONSIDERING APPROVAL	ACTION CONSIDERED APPROVAL	C-ACCREDITED CANVASS O-ACCREDITED ORGANIZATION S-ACCREDITED STDS. COMMITTEE X-NOT INTENDED FOR ANSI

## ATTACHMENT B-13 S2/251

## STATUS REPORT

MECHANICAL VIBRATION AND SHOCK

STATUS:

COMMITTEE	. S2				
DESIGNATION/ EDITION	IN/ SUBJECT OR TITLE	STATUS	ACTIVITY METHOD	МЕТНОБ	COMMENTS OR EXPECTED DATE OF SUBMISSION TO ANSI
S2.XX	Measurement and Evaluation of Machine Tool Vibration (S2/WG88)	NS;SP	<del>-</del>		
S2.XX	Characterization of the Dynamic Mechanical Properties of Viscoelastic Polymers (\$2/WG79)	NS;SP	-		

	4-ANSI STANDARDS ACT 5-OBJECTIONS BEING CC 6-ANSI CONSIDERING AP
ACTIVITY	0-NONE 1-FORMATIVE STAGE 2-DRAFTING STANDARD 3-VOTING ON PROPOSAL
	NR - NEEDS REVIEW AP - ANSI APPROVED OP - OUT OF PRINT NA - NOT YET AVAIL. UD - UP-TO-DATE
STATUS	NS - NEW STD IN PROCESS RF - REAFFIRMATION IN PROC. RV - REVISION IN PROCESS WD - WITHDRAWAL IN PROCESS ES - ENVIRONMENTAL SOUND SP - SUBMITTED PINS FORM

METHOD	C-ACCREDITED CANVASS O-ACCREDITED ORGANIZATION S-ACCREDITED STDS. COMMITTEE X-NOT INTENDED FOR ANSI
	S ACTION NG CON <sup>EY</sup> , JRED NG APPROVAL

## ACOUSTICAL SOCIETY OF AMERICA

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S2/251 ATTACHMENT C-1

## **S2 STANDARDS ON MECHANICAL VIBRATION AND SHOCK**

ANSI \$2.2-1959	Methods for the Calibration of Shock and Vibration Pickups
ANSI \$2.4-1976 (R 1990)	Specifications for a High-Impact Shock Machine for Electronic Devices
ANSI \$2.5-1962 (R 1990)	Recommendations for Specifying the Performance of Vibration Machines
ANSI S2.7-1982 (R 1986)	Balancing Terminology
ANSI S2.8-1972 (R 1990)	Guide for Describing the Characteristics of Resilient Mountings
ANSI S2.9-1976 (R 1990)	Nomenclature for Specifying Damping Properties of Materials
ANSI S2.10-1971 (R 1990)	Methods for Analysis and Presentation of Shock and Vibration Data
ANSI S2.11-1969 (R 1986)	Selection of Calibrations and Tests for Electrical Transducers used for Measuring Shock and Vibration
ANSI S2.14-1973 (R 1986)	Methods for Specifying the Performance of Shock Machines
ANSI S2.15-1972 (R 1986)	Specification for the Design, Construction, and Operation of Class HI (High-Impact) Shock-Testing Machine for Lightweight Equipment
ANSI S2.17-1980 (R 1986)	Techniques of Machinery Vibration Measurement
ANSI S2.19-1989	Mechanical Vibration—Balance Quality Requirements of Rigid Rotors, <u>Part 1</u> : Determination of Permissible Residual Unbalance
ANSI S2.20-1983 (R 1989)	Estimating Airblast Characteristics for Single Point Explosions in Air, with a Guide to Evaluation of Atmospheric Propagation and Effects

## **S2 STANDARDS ON MECHANICAL VIBRATION AND SHOCK**

ANSI S2.31-1979 (R 1986)	Method for the Experimental Determination of Mechanical Mobility. <u>Part 1</u> : Basic Definitions and Transducers
ANSI S2.32-1982 (R 1990)	Methods for the Experimental Determination of Mechanical Mobility. Part 2: Measurements Using Single-Point Translation Excitation
ANSI S2.34-1984 (R 1990)	Guide to the Experimental Determination of Rotation Mobility Properties and the Complete Mobility Matrix
ANSI S2.38-1982 (R 1990)	Field Balancing Equipment-Description and Evaluation
ANSI \$2.40-1984 (R 1990)	Mechanical Vibration of Rotating and Reciprocating MachineryRequirements for Instruments for Measuring Vibration Severity
ANSI \$2.41-1985 (R 1990)	Mechanical Vibration of Large Rotating Machines with speed Range from 10 to 200 rev/s—Measurement and Evaluation of Vibration Severity in situ
ANSI \$2.42-1982 (R 1990)	Procedures for Balancing Flexible Rotors
ANSI \$2.43-1984 (R 1990)	Criteria for Evaluating Flexible Rotor Balance
ANSI \$2.45-1983 (R 1990)	Electrodynamic Test Equipment for Generating Vibration-Methods of Describing Equipment Characteristics
ANSI S2.46-1989 (R 1991)	Characteristics to be Specified for Seismic Transducers
ANSI S2.47-1990	Vibrations of Buildings—Guidelines for the Measurements of Vibrations and Evaluation of their Effects on Buildings
ANSI S2.48-1993	Servo hydraulic test equipment for generating vibration. Method of describing characteristics.
ANSI S2.58-1983 (R 1990)	Auxiliary Tables for Vibration Generators—Methods of Describing Equipment Characteristics
ANSI S2.60-1987	Balancing MachinesEnclosures and Other Safety Measures
ANSI S2.61-1989 (R 1991)	Guide to the Mechanical Mounting of Accelerometers

REPORT ON \$2/WG76: Measurement and Evaluation of Machinery Vibration (counterpart to ISO/TC 108/SC2/WG1)

S2/WG76 plans to send five delegates to the ISO/TC 108/SC2/WG meetings in London during the week of March 22, 1993. The following working drafts of international standards will be discussed at this meeting:

- 1. <u>Committee Draft ISO 10816, Part 4</u>: Mechanical Vibration-Evaluation of Gas Turbine Driven Sets. This document is sponsored by S2/WG76.
- 2. Fourth Working Draft of ISO 10816, Part 3: Guidelines for Coupled Industrual Machines with Nominal Power above 50 kw. and Nominal Speeds between 120 and 15,000 Rpm, when measured in situ.
- 3. Third Committee Draft of ISO 10816, Part 6: Measurement and Evaluation of Mechanical Vibration of Reciprocating Machines with Power Ratings above 100 kw.
- 4. <u>Fifth Working Draft of ISO 7919, Part 5</u>: Mechanical Vibration Measurements on Rotating Shafts, Guidelines for Hydraulic Machine Units.

In addition to working on the above standards, S2/WG76 in conjunction with the Canadian delegation has completed <u>ISO/CD 10816</u>, <u>Part 2</u>: Vibration Guidelines for Large Land Based Steam Turbine Sets in January, 1993. ISO/TC 108/SC2/WG1 will now send the document to DIN to send to Geneva for processing as a DIS.

It is expected that International Standards <u>ISO 7919</u>, <u>Part 2</u>; <u>ISO 7019</u>, <u>Part 3 and ISO 7919</u>, <u>Part 4</u> will be published soon. S2/WG76 will then proceed to write the ANSI counterparts of these standards and publish them as soon as possible.

S2/WG76 is presently preparing the ANSI counterparts of <u>ISO 7919</u>, <u>Part 1</u> and <u>ISO 2372</u>. These documents should be available for vote in three months.

The chairman of S2/WG76 continues to coordinate his committees work with the ASME Committee on Operation and Maintenance of Nuclear Power Plants in the areas of machinery vibration and machinery vibration condition monitoring.

S2/WG76 is presently reviewing the <u>Fifth Working Draft of Radial Rotating Shaft Vibration Measuring Systems</u>, Part 1: Relative and Absolute Signal Sensing of Rotor <u>Shafts</u>. After the review, we plan to discuss our comments with Dr. Bruce Douglas, who prepared the document as S2/WG81 Chairman.

Paul H. Maedel, Jr. Chair, S2/WG76 Submitted on 16 March 1993

## ATTACHMENT E S2/251

**COMMITTEE CORRESPONDENCE** 

ACCREDITED STANDARDS COMMITTEE S2, MECHANICAL SHOCK AND VIBRATION WORKING GROUP S2-78, MEASUREMENT AND EVALUATION OF STRUCTURAL VIBRATION U.S. Bureau of Mines, 5629 Minnehaha Ave. So., Minneapolis, Minnesota 55417 D. E. Siskind Telephone: (612) 725-4598 Telefax: (612) 725-4526 Working Group Chair

To:

S2-78 Members

From:

David E. Siskind

Subject: Changes in Working Group Title and Scope

The attached pages are from the Minutes of the Accredited Standards Committee on Mechanical Shock and Vibration, S2, November 1992.

Page 8 from those minutes has a suggestion for changes in the Working Group-78 title and scope. Both of these are given on the "Attachment" page, also included.

I concur that we add the word "stationary" as suggested and that we change the Scope as follows:

"Measurement and evaluation of vibrations and shock response of stationary structures including but not limited to buildings. dams, bridges, and towers. Vibration and shock may be transmitted in the structure by the ground, air, or generated within the structure itself."

The next natural question is who wants to volunteer expertise to address these questions. My research group recently completed one study on vibrations of pressurized transmission pipelines; however, I don't claim that study allinclusive of all pipelines nor all blasting. I have some information on the other non-house structures, but none of it is first-hand.

Suggestions are welcomed.

DAVID E. SISKIND

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ATTACHMENT F-1 S2/25!

ISO/TC 108 MECHANICAL VIBRATION AND SHOCK (and SUBCOMMITTEES SC1, SC2, SC3, and SC4) (U.S. Technical Advisor, D. Muster for TC 108)

Documents processed by the ASA Standards Secretariat from October 1992 through April 1993:

The following documents were received for VOTE AND COMMENT by the U.S. Member Body:

Technical Coordinator	TAG	DRAFT INERNATIOMAL STANDARD(S) (DIS)
D.G. Stadelbauer	S2	ISO/DIS 11342: Mechanical Vibration - Methods and criteria for the mechanical balancing of flexible rotors.

announced to S2 (S2/244) on 15 September 1992. The U.S. position, <u>AFFIRMATIVE</u> <u>WITH COMMENTS</u>, was submitted to ANSI on 9 December 1992, and from ANSI to ISO on 10 December 1992.

P.H. Maedel

S2

ISO/DIS 10816-1: Mechanical
Vibration - Evaluation of machine
vibration by measurements on
non-rotating parts. Part 1:
General Guidelines

was announced to \$2 (<u>\$2/252</u>)on 31 May 1993.

Technical Coordinator	TAG	COMMITTEE DRAFTS (CD)
H.E. von Gierke	S3	Fourth Committee Draft ISO/CD 2631: Guide to the evaluation of human exposure to whole-body vibration.

announced to S3 (TAG for ISO/TC 108/SC4) (<u>S3/360</u>) on 21 January 1993. The U.S. vote, <u>AFFIRMATIVE WITH COMMENTS</u>, was submitted to ANSI on 2 March 1993.

### **OTHER ACTIONS**

## 1. Scope of ISO/TC 108 and proposed scope change for Accredited Standards Committee S2

See under ISO/TC 108 activities, on page of the Minutes (S2/251).

## 2. New Work Item Proposals (NWIPs) for ISO/TC 108

Ten (10) new work item proposals (NWIPs), ISO/TC 108 N 605-N 614, were circulated by the Secretariat of ISO/TC 108 to P and O Members on 17 August 1992. The ballot closed on 17 November 1992 and the work items were summarized in TC 108 N 615, circulated to S2 for vote (and detailed in the S2/247 Minutes).

## 3. Review of various ISO/TC 108 standards

The following list of standards was received from ISO for review by ISO/TC 108, ISO/TC 108/SC1, ISO/TC 108/SC2, ISO/TC 108/SC3, and ISO/TC 108/SC4:

ISO 2017: 1982	Vibration and shock - Isolators - Procedure for specifying characteristics
ISO 5344: 1980	Electrodynamic test equipment for generating vibration - Methods of describing equipment characteristics
ISO 5406: 1980	The mechanical balancing of flexible rotors
ISO 5983: 1981	Vibration and shock - Mechanical driving point impedance of the human body
ISO 6070: 1981	Auxiliary tables for vibration generators - Methods of describing equipment characteristics
ISO/5347-0: 1987	Methods for the calibration of vibration and shock pick-ups Part 0: Basic concepts
ISO 5348: 1987	Mechanical vibration and shock - Mechanical mounting of accelerometers
ISO 7962: 1987	Mechanical vibration and shock - Mechanical transmissibility of the human body in the z direction
	ISO 5344: 1980 ISO 5406: 1980 ISO 5983: 1981 ISO 6070: 1981 ISO/5347-0: 1987 ISO 5348: 1987

At the  $\underline{\text{ISO/TC }108}$  meeting held in London, U.K. (22 March to 2 April 1993), it was decided to confirm the following ISO Standards:

•	ISO 8042: 1988	Shock and Vibration Measurements - characteristics to be specified for seismic pick-ups
•	<u>ISO 6070: 1981</u>	Auxiliary tables for vibration generators. Methods of describing equipment characteristics.
•	ISO 2954: 1975	Mechanical vibration of rotating and reciprocating machinery. Requirements for instruments for measuring vibration.
•	ISO 2372: 1974	Mechanical vibration of machines with operating speeds from 10 to 200 rev/s. Basis for specifying evaluation standards Amendment 1-1983.



American National \$2/251
Standards Institute 11 WEST 42ND 51HEET NEW YORK YEW YORK TOUGH

ATTACHMENT G \$2/251

TEL. 12 642 4900

FAX. 212 398 0023 Cable: Standards New York Marnational Taley: 40 42 96 ANS ...

International Telex: 42 42 96 ANS. UF CPU N S 07:329:4837

February 25, 1993

Dr. Avril Brenig Acoustical Society of America 335 East 45th Street New York, NY 10017

Dear Dr. Brenig:

On behalf of the Executive Standards Council, I am pleased to inform you that ASC S2, has been reaccredited effective February 18, 1993 under the following scope:

Standards, specifications, methods of measurement and test, and terminology in the fields of mechanical vibration and shock and condition monitoring and diagnostics of machines, but excluding those aspects which pertain to biological safety, tolerance and comfort.

I wish to take this opportunity to ask that ASC S2 continue to adhere to Section 4 of the ANSI Procedures of the Development, and Coordination of American National Standards in the designation, publication and maintenance of its American National Standards.

If you have any further questions relative to your accreditation as a developer of American National Standards, please do not hesitate to contact me.

Sincerely.

Kayla Serotte

Recording Secretary

**Executive Standards Council** 

cc: Julia Lindsay, ANSI Staff

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KS/1611X

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> S2/251 ATTACHMENT H-1 15 April 1993

TO: S.I. Hayek, Chair S2

Re: Letter Ballot LB/S2/248 sent to Accredited

Standards Committee S2 on 18 December 1992

and closed on 29 January 1993

SUBJECT:

Approval of Officers and Individual Experts, and U.S. TAG Chairs

for 1993/1994

Enclosed please find tally of the above letter ballot, showing results as follows:

## **CLASSIFICATION OF MEMBERS**

AFFIRMATIVE VOTES	9	P - PRODUCER	2
NEGATIVE VOTES	0	C - CONSUMER	1
ABSTENTIONS	0	G - GOVERNMENT	4
NOT RETURNED	2	GI - GENERAL INTEREST	4
TOTAL	11	TOTAL	11

## Continuation of results of letter ballot \$2/248:

## **AFFIRMATIVE VOTES:**

Brown, R.
Hayek, S.I.
Henderson, D.A.
Lally, R.W.
Olsen, N.
Rawlings, D.

Shang, P. Stadelbauer, D.G. Institute of Environmental Sciences Acoustical Society of America U.S. D.pt. of the Air Force PCB Piezotronics, Inc. Hewlett-Packard Company National Electrical Manufacturers

Association
Naval Surface Warfare Center
Schenck Trebel Corporation

## **NEGATIVE VOTES:**

None

## **ABSTENTIONS:**

None

## **NOT RETURNED:**

Evans, D.J.

National Institute of Standards and Technology Endevco Corporation

Sill, R.D.

Continuation of results of letter ballot S2/248:

**LATE RESPONSE:** 

Shang, P.

**Navai Surface Warfare Center** 

Avril Brenig Standards Manager

cc: Vice Chair, Standards Committee Chair and Vice Chair, ASACOS

## **ATTACHMENT A**

## S2 ACCREDITED STANDARDS COMMITTEE ON MECHANICAL SHOCK AND VIBRATION S2 Appointments

Position	Individual	<u>Term</u>
Chairman	S.I. Hayek	1991-1994
Vice Chairman	J.R. Arrington	1992-1995
ASA Representative	S.I. Hayek	1993-1994
Alt. ASA Representative	J.R. Arrington	1993-1994
Individual Experts:	P.K. Baade	1993-1994
	R.G. Bartheld	1993-1994
	G. Booth	1993-1994
	K.M. Eldred	1993-1994
	R.L. Eshleman	1993-1994
	S. Feldman	1993-1994
	M. Gross	1993-1994
	D.L. Johnson	1993-1994
	A.F. Kilcullen	1993-1994
	P.H. Maedel, Jr.	1993-1994
	D.F. Muster	1993-1994
	R.M. Serbyn	1993-1994
	D.G. Stadelbauer	1993-1994
	A.O. Sykes	1993-1994
	R. Taddeo	1993-1994
	H.E. von Gierke	1993-1994
	D.N. Walker	1993-1994
	S.P. Ying	1993-1994